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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,681	12/11/2001	Michael Anthony Klug	M-8577-3D US	4374

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EXAMINER

CURTIS, CRAIG

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/014,681	Applicant(s) KLUG ET AL.	
	Examiner Craig Curtis	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-41, 57 and 64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-41, 57 and 64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Disposition of the Instant Application

- This Office Action is responsive to Applicants Amendment filed on 8 December 2003.
- By this amendment, Applicants have amended independent claim 36 such that it further recite the following: "..., and wherein the removable band-limited diffuser is designed for a wavelength corresponding to a wavelength of the coherent beam;" and "..., wherein the removable band-limited diffuser and the removable masking plate form a matched set configured to allow exposure of a particular size hogel;".
- Claims 36-41, 57, and 64 are currently pending in the instant application.

Claim Rejections - 35 USC 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claim 57 is rejected under 35 U.S.C. 102(b) as being anticipated by Kihara et al. (US 5,949,559).**

Kihara et al. disclose a method (see ABSTRACT, entire document) comprising the steps of selecting an elemental hologram (see, e.g., Figs. 3A & 3B);

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generating a coherent light beam (from laser 31);

splitting the beam into an object beam and a reference beam (see 33);

rendering an image (see 41);

conditioning the object beam with the rendered image (see, e.g., col. 5, ll. 29-47), the conditioning of the object beam including the step of passing the object beam through [read: through] a voxel-control lens (43), the voxel-control lens being capable of varying the size of at least one voxel (inherent) and being capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material (in the same manner as that set forth in the instant invention); and interfering the conditioned object beam with the reference beam at the selected elemental hologram. See Figs. 3A & 3B.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 36-41 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kihara et al. (US 5,949,559).

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With regard to claims 36-38, Kihara et al. disclose the invention as claimed--an apparatus and method for printing holographic stereograms, comprising, inter alia:

- a light source that produces a coherent beam (31);

- a beam splitter (33) that splits the combined beam into an object beam and a reference beam;

- a band-limited diffuser (42, 45: band-limited nature being inherent; see text below), wherein said band-limited diffuser includes a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction (42);

- a holographic recording material (30);

- an object beam unit (see Figs. 3A & 3B) including a diffuser (42, 45) for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram (see Fig. 4);

- a masking plate (44) proximate to the holographic recording material;

- a voxel-control lens (43) located in the path of the object beam and proximate to the holographic recording material, said voxel-control lens being capable of varying the size of at least one voxel and being capable of making the rendered image displayed by the object beam unit as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material;

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wherein the object beam unit includes a SLM (41) for displaying the rendered image and the voxel-control lens has a focal length about equal to the distance between the voxel-control lens and the SLM--**EXCEPT FOR** explicit teachings of the following claimed limitations:

wherein said masking plate is located in the path of the reference beam;

wherein said diffuser for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram is removable;

wherein said masking plate located in the path of the reference beam and proximate to the holographic recording material is removable;

wherein said removable masking plate has at least one positioning adjustment device; and

wherein removable band-limited diffuser has at least one positioning adjustment device.

With regard to said diffuser for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram being both band-limited and removable, it is noted that, strictly speaking, said diffuser taught by Kihara et al. is inherently band-limited, inasmuch as said diffuser would not efficiently pass, for the sake of example, radiation in the infrared or ultraviolet bands of the electromagnetic spectrum; and with regard to the removability of said diffuser, it is noted as being notoriously old and well-known for optical elements of all types, including diffusers, to be removable from or positionable in optical systems; and as such, such teachings cannot be the basis of patentably distinguishing the instant invention over the prior art.

It would have been obvious to one having ordinary skill in the holographic art at the time the invention was made to have modified the invention of Kihara et al. such that said diffuser be removable, such teaching being notoriously old and well-known in the holographic/optical system art, for at least the reason of allowing one to position said diffuser easily and variously within said system in order to achieve a desired diffusion effect.

With regard to the removability of said masking plate, it is asserted that it would have been obvious to one having ordinary skill in the holographic art at the time the invention was made to have modified the invention of Kihara et al. such that said masking plate be removable, such teaching being notoriously old and well-known in the holographic/optical system art, for at least the reason of allowing one to position said masking plate easily and variously within said system in order to achieve a desired masking effect.

With regard to claim 64, it is noted that each of the removable band-limited diffuser and the removable masking plate of Kihara et al. are located in respective positions such that the removable band-limited diffuser can be replaced with a second band-limited diffuser (cf. diffusers 42 & 45), and the removable masking plate could be replaced with a second removable masking plate, wherein the second band-limited diffuser and the second removable masking plate allow recording at least one of a larger elemental hologram, a smaller elemental hologram and a differently shaped elemental hologram.

Response to Arguments


3. Applicants' arguments with respect to claims 36-41, 57, and 64 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Craig Curtis, whose telephone number is (571) 272-2311. The centralized facsimile phone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature regarding the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

C.H.C.
Craig H. Curtis
Group Art Unit 2872
4 March 2004



Audrey Chang
Primary Examiner
Technology Center 2800